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TITLE: HOME ZONE LIST AUTOMATIC GENERATING METHOD IN MOBILE
               COMMUNICATION SYSTEM

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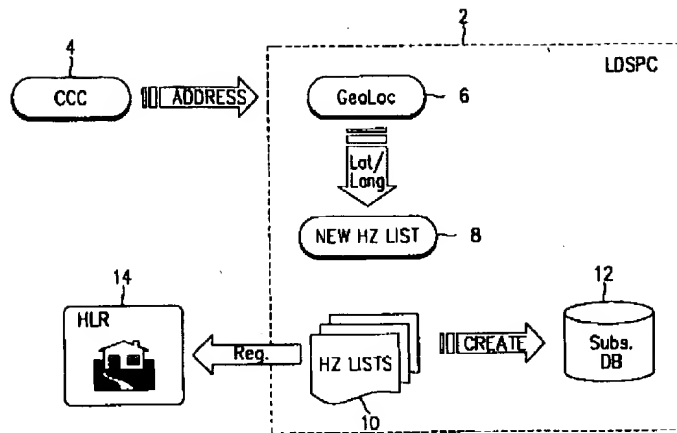INT-CL (IPC): H04Q007/34, H04M003/00 , H04M003/42

ABSTRACT:

   PROBLEM TO BE SOLVED: To provide a method that provides an updated home zone
database to an especially related mobile phone subscriber in a mobile
communication system.

   SOLUTION: The home zone list generating method of this invention includes a
step where a subscriber receives address location information that is going to
be determined at a home zone location, a step where an object base station
located within a preset distance from the address location is detected, a step
where a coverage area around the address location is divided into many sub
coverage areas, a step where a detected BTS(Base Transceiver Station) is
coupled with each of the sub coverage areas divided from the coverage area, a
step where priority is placed on the BTSes in each sub coverage area according
to 1st-3rd tiers, and a step where a new sector list with respect to the
subscriber on the basis of sector angle data of the 1st tier BTS is generated.

【図1】

CCC —4

|||ADDRESS
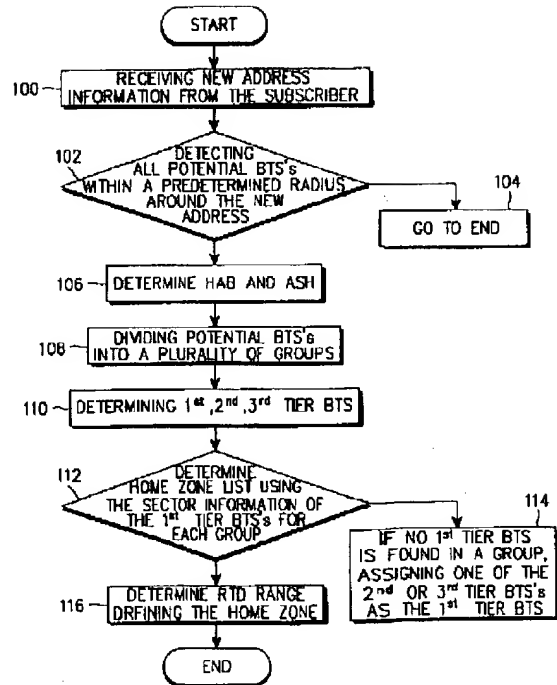
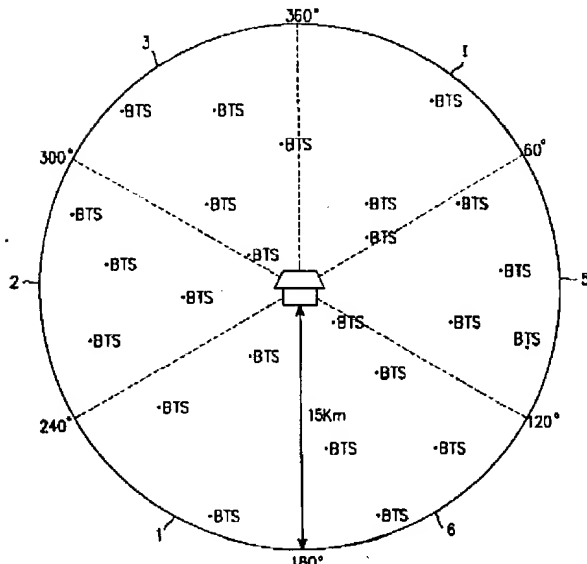LDSPC —2

GeoLoc —6

Lat/ Long

NEW HZ LIST —8

HLR —14

← Req.

HZ LISTS —10

|||CREATE

Subs. DB —12

【図2】

Subs DB : HZ U st DB	
nsn	NATIONAL SWITCHING NUMBER
nid1	NETWORK IDENTIFIER(MSC)
bts1	(N=1) BTS_ID
sector1	(N=1) SECTOR_ID
rtd1	(N=1) RTD_MN
OFFSET1	(N=1) RTD_MAX
......	
nid16	NETWORK IDENTIFIER(MSC)
bts16	(N=1) BTS_ID
sector16	(N=1) SECTOR_ID
rtd16	(N=1) RTD_MN
OFFSET16	(N=1) RTD_MAX

【図4】

START

RECEIVING NEW ADDRESS INFORMATION FROM THE SUBSCRIBER —100

DETECTING ALL POTENTIAL BTS's WITHIN A PREDETERMINED RADIUS AROUND THE NEW ADDRESS —102

GO TO END —104

DETERMINE HAB AND ASH —106

DIVIDING POTENTIAL BTS's INTO A PLURALITY OF GROUPS —108

DETERMINING 1st, 2nd, 3rd TIER BTS —110

DETERMINE HOME ZONE LIST USING THE SECTOR INFORMATION OF THE 1st TIER BTS's FOR EACH GROUP —112

IF NO 1st TIER BTS IS FOUND IN A GROUP, ASSIGNING ONE OF THE 2nd OR 3rd TIER BTS's AS THE 1st TIER BTS —114

DETERMINE RTD RANGE DRFINING THE HOME ZONE —116

END

【図6】

360°

3

I

·BTS   ·BTS

300°   60°

·BTS

·BTS   ·BTS   ·BTS

·BTS   ·BTS   ·BTS

2   ·BTS   5

·BTS   ·BTS

·BTS   ·BTS   ·BTS   BTS

·BTS   ·BTS

240°   120°

·BTS   ·BTS

15Km

1   6

180°

【図３】

DB NAME	LDSPC	TABLE DESCRIPTION ON			Ver si on	ED 1.0
TABLE ID	BTS_65				DATE	YYYY. NM DD
DESC	BTS PARAMETER					
NO	COLUMN	TYPE	Len	FEATURE	STORAGE TYPE	DESCRIPTION
1	bts_j d	chor	16	NOT NULL		BTS ID
2	l atl	chor	10	NOT NULL		LATITUDE
3	LONG	chor	11	NOT NULL		LONGITUDE
4	ANGLE1	SMALL INT	2	NOT NULL		ANGLE OF α SECTOR(0~360)
5	ANGLE2	SMALL INT	2	NOT NULL		ANGLE OF β SECTOR(0~360)
6	ANGLE3	SMALL INT	2	NOT NULL		ANGLE OF γ SECTOR(0~360)
7	s_DELAY1	SMALL FLOAT	4	NOT NULL		SECTOR SYSTEM DELAY
8	s_DELAY2	SMALL FLOAT	4	NOT NULL		SECTOR SYSTEM DELAY
9	s_DELAY3	SMALL FLOAT	4	NOT NULL		SECTOR SYSTEM DELAY
10	svc_ron1	SMALL FLOAT	4	NOT NULL		SECTOR SERVICE RANGE
11	svc_ron2	SMALL FLOAT	4	NOT NULL		SECTOR SERVICE RANGE
12	svc_ron3	SMALL FLOAT	4	NOT NULL		SECTOR SERVICE RANGE
13	exp_ron	SMALL FLOAT	4	NOT NULL		CHP NUMBER AT EXCEPTION CASE
14	DIRTY	SMALL INT	2			BTS Add/REMOVE/Opt.
NO	INDEX FIELD				DESCRIPTION	
1	bts65_j dx(U): bts_id				BTS_ID	

【図５】

$$\theta = ARCTAN\left(\frac{Y_b - Y_b}{X_b - X_b}\right)$$
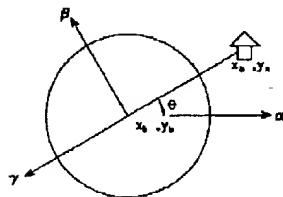
- Xb : BTS LONG
- Yb : BTS Lat'
- $\theta_{onienno}$: THE ANGLE OF ANTENNA
- Xh : Subsb. HOME LOCATION(LONG)
- Yn : Subsb. HOME LOCATION (LATI)

Xh−Xb=0, Yh−Yb>0	$\theta = 0°$
Xh−Xb>0, Yh−Yb>0	$\theta = (90 - \theta)° * 180/n$
Xh−Xb>0, Yh−Yb=0	$\theta = 90°$
Xh−Xb>0, Yh−Yb<0	$\theta = (90 - \theta)° * 180/n$
Xh−Xb=0, Yh−Yb<0	$\theta = 180°$
Xh−Xb<0, Yh−Yb<0	$\theta = (270 - \theta)° * 180/n$
Xh−Xb<0, Yh−Yb=0	$\theta = 270°$
Xh−Xb<0, Yh−Yb>0	$\theta = (270 - \theta)° * 180/n$
Xh−Xb=0, Yh−Yb=0	BTS ANGLE = HOME ANGLE